

STUDIES IN THE EUPATORIEAE (COMPOSITAE). XIII.

THE GENUS CONOCLINIUM

R. M. King and H. Robinson
Smithsonian Institution, Washington, D.C. 20560

Studies of the floral anatomy confirm that Conoclinium is a distinct genus consisting of three species from the United States and Mexico. The genus has been recognized previously by Decandolle (1836) and Small (1903) on the basis of conical receptacle and narrow subimbricate phyllaries. Microscopic examination shows corolla lobes papillose on both the inner and outer surfaces and an anther collar with prominent transverse thickenings in the cell walls. Genera showing these characters include Fleischmannia, Ageratum, and Gyptis. Conoclinium is further distinguished by the primarily glandular indument of the corolla and achene and the blunt tipped apical cells of the pappus setae.

Grant (1953) in his cytological study of the genus Eupatorium found a chromosome number of $n=10$ in Conoclinium coelestinum and stated "The chromosomes of E. coelestinum are extremely small in comparison with the larger chromosomes found in the Verticillata and SUBIMBRICATA which also have a basic number of 10. The chromosomes are $1.0-2.0 \mu$ in length, and as a comparison of fig. 51 and 55 will show, fall in the range of the previous group with a basic number of 17. The chromosomes of E. coelestinum, however, form a third type of chromosome complement." Both C. betonicaefolium (as E. betonicum) (Turner, Powell and King, 1962) and C. greggii (DeJong and Longpre, 1963; Powell and Turner, 1963) have since been recorded as $n = 10$.

Conoclinium DC. Prod. 5:135. 1836.

Sparingly branched herbs; leaves opposite, petioled, blades ovate to deltoid-ovate, crenate to bipinnatifid. Inflorescence in corymbose clusters; heads 50-70 flowered, involucre of ca 25 narrow, usually acute, subimbricate, mostly subequal phyllaries in 2-3 series, receptacle glabrous, conical. Corolla tubular with only slightly narrowed base; outer and inner surface of lobes papillose, papillae of outer surface thick-walled, stomates absent, glands present. Anther collar with elongate cells showing distinct transverse thickenings throughout, exothecial cells mostly quadrate or slightly longer than wide; anther appendage large. Style with a scarcely enlarged basal node with adherant basal sheath; surface cells of stylar appendage densely long projecting. Achene prismatic, glabrous or with a few scattered setae and glands; carpodium not

usually well developed, distinct and asymmetrical in C. greggii; pappus of ca. 30 scabrous setae with enlarged blunt apical cells. Embryo not noticeably sclerotized at lower end. Chromosome number $x = 10$.

Type species; Eupatorium coelestinum L.

Our studies indicate that the genus contains the following three species.

Conoclinium betonicaefolium (Miller) R.M.King & H.Robinson, comb. nov. Eupatorium betonicaefolium Miller, Gard. Dict. ed. 8 Eupatorium no. 9. 1768. Mexico, Texas.

Conoclinium coelestinum (L.) A.P.Decandolle, Prodr. 5: 135. 1836. Eupatorium coelestinum L., Sp. Pl. 836. 1753. E. United States.

Conoclinium greggii (A.Gray) Small, Fl. Southeastern U.S. 1169. 1903. Eupatorium greggii A.Gray, Syn. Fl. N. Am. 1. II: 102. 1884. SW. United States, Mexico.

Literature Cited

- Decandolle, A. P. 1836. Ordo CII. Compositae. Prodr. Syst. Nat. 5: 4-695.
- De Jong, D. C. D. & E. K. Longpre 1963. Chromosome studies in mexican Compositae. Rhodora 65: 225-240.
- Grant, W. F. 1953. A cytotaxonomic study in the genus Eupatorium. Amer. Journ. Bot. 40: 729-742.
- Powell, A. M. & B. L. Turner 1963. Chromosome numbers in the Compositae. VII. Additional species from the southwestern United States and Mexico. Madroño 17: 128-140.
- Small, J. K. 1903. Flora of the Southeastern United States. i-xii, 1-1370. New York.
- Turner, B. L., M. Powell & R. M. King 1962. Chromosome numbers in the Compositae. VI. Additional mexican and guatemalan species. Rhodora 64: 251-271.